

What is claimed:

1. A system for notifying a CDMA 2000 1xEV-DO system of switching from a 1xEV-DO mode into a 1X mode when a
5 hybrid access terminal is switched into the 1X mode, the system comprising:

the hybrid access terminal operated in the 1X mode in relation to a 1X system for receiving a voice signal transmission service or a low-rate data transmission service
10 from the 1X system and in the 1xEV-DO mode in relation to the 1xEV-DO system for receiving a high-rate data transmission service from the 1xEV-DO system, the hybrid access terminal in traffic with the 1xEV-DO system being periodically switched into the 1X mode in order to update an
15 overhead message while transmitting a predetermined signal notifying the 1xEV-DO system of switching of the hybrid access terminal from the 1xEV-DO mode into the 1X mode;

a base station transceiver subsystem including a 1xEV-DO access network transceiver for transmitting/receiving
20 packet data to/from the hybrid access terminal and a 1X transceiver for transmitting/receiving voice or data to/from the hybrid access terminal;

a base station controller including a 1xEV-DO access network controller for controlling a packet data
25 transmission service of the 1xEV-DO access network transceiver and a 1X controller for controlling a transmission service of the 1X transceiver; and

a packet data serving node (PDSN) connected to the 1xEV-DO access network controller so as to transmit/receive the packet data to/from the 1xEV-DO system.

5 2. The system as claimed in claim 1, wherein the hybrid access terminal is switched to the 1X mode in an idle state thereof in order to make communication with the 1X system, is periodically switched into the 1xEV-DO mode in a predetermined period of time so as to check whether or not
10 data are received through the 1xEV-DO system, and then returns to the 1X mode.

 3. The system as claimed in claim 1, wherein the hybrid access terminal receiving high-rate data from the
15 1xEV-DO system in the 1xEV-DO mode is periodically switched into the 1X mode in a predetermined period of time so as to check whether or not signals are received through the 1X system, and then returns to the 1xEV-DO mode.

20 4. The system as claimed in claim 1, wherein a TDMA (time division multiple access) method is utilized in a case of a forward link transmitting data from the 1xEV-DO system to the hybrid access terminal, and a CDMA (code division multiple access) method is utilized in a case of a reverse
25 link transmitting data from the hybrid access terminal to the 1xEV-DO system.

5 5. The system as claimed in claim 4, wherein a hard handoff is carried out in case of the forward link by transmitting data with maximum power without performing power control, and a soft handoff is carried out in case of the reverse link while performing the power control with respect to each hybrid access terminal.

10 6. The system as claimed in claim 1, wherein the hybrid access terminal is switched from the 1xEV-DO mode into the 1X mode by tracking frequency of the 1X system using a searcher module under the control of a mobile station modem (MSM) chip.

15 7. The system as claimed in claim 4, wherein the forward link includes a pilot channel used for transmitting a pilot signal allowing the 1xEV-DO system to track the hybrid access terminal, a MAC (medium access control) channel used for controlling the reverse link, a control channel used for transmitting a broadcast message or a direct message for directly controlling a specific hybrid access terminal from the 1xEV-DO system to the hybrid access terminal, and a traffic channel used for transmitting only packet data from the 1xEV-DO system to the hybrid access terminal.

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8. The system as claimed in claim 1, further comprising a mobile switching center for providing a

communication access route of the 1X system with respect to a communication call transmitted from the hybrid access terminal by switching the communication access route.

5 9. A method for notifying a CDMA 2000 1xEV-DO system of switching from a 1xEV-DO mode into a 1X mode when a hybrid access terminal is switched into the 1X mode, the method comprising the steps of:

10 (a) sequentially initializing the 1X mode and the 1xEV-DO mode of the hybrid access terminal such that the hybrid access terminal stays in an idle state;

15 (b) performing dual monitoring with respect to the 1X mode and the 1xEV-DO mode by using the hybrid access terminal in a state that the hybrid access terminal stays in the idle state;

20 (c) allowing the hybrid access terminal to enter into a traffic state of the 1xEV-DO mode such that a connection and a session are formed between the hybrid access terminal and the 1xEV-DO system, thereby enabling the hybrid access terminal to transmit/receive packet data to/from the 1xEV-DO system;

 (d) switching the hybrid access terminal into the 1X mode after transmitting a predetermined signal to the 1xEV-DO system when a predetermined monitoring time lapses; and

25 (e) demodulating the predetermined signal received in the 1xEV-DO system to determine the switching of the hybrid access terminal into the 1X mode.

10. The method as claimed in claim 9, wherein, in step (a), the hybrid access terminal initializes the 1xEV-DO mode by using system parameters obtained when initializing the 1X mode.

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11. The method as claimed in claim 9, wherein, in step (d), the switching operation is carried out by means of a searcher module which tracks frequency of the 1X system under the control of a mobile station modem (MSM) chip.

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12. The method as claimed in claim 9, wherein, in step (d), the monitoring time is a connection time of the hybrid access terminal to the 1xEV-DO system until the hybrid access terminal is switched into the 1X mode.

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13. The method as claimed in claim 12, wherein the monitoring time is 5.12 seconds.

14. The method as claimed in claim 9, wherein, in step (d), the hybrid access terminal transmits the predetermine signal through a data rate control (DRC) channel of a reverse link.

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15. The method as claimed in claim 14, wherein the predetermine signal includes information about a DRC cover value, which is determined in advance and notifies that the hybrid access terminal is switched into the 1X mode.

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16. The method as claimed in claim 9, wherein, in step (e), the 1xEV-DO system performs a call drop operation for the hybrid access terminal when the hybrid access terminal switched into the 1X mode represents no response to a call signal of the 1xEV-DO system within a predetermined time.

17. The method as claimed in claim 9, wherein, in step (e), the 1xEV-DO system determines that a call drop of the hybrid access terminal occurs due to the switch of the hybrid access terminal into the 1X mode, if the hybrid access terminal switched into the 1X mode represents no response to a call signal of the 1xEV-DO system within a predetermined time.

18. The method as claimed in claim 15 or 17, wherein the 1xEV-DO system determines the switch of the hybrid access terminal into the 1X mode by checking the DRC cover value through demodulating the predetermined signal received in the 1xEV-DO system.

19. The method as claimed in claim 16 or 17, wherein the predetermined time is defined in a standard of the 1xEV-DO system as 5.12 seconds.

20. A hybrid access terminal capable of preventing a call drop thereof with respect to a 1xEV-DO system by notifying the 1xEV-DO system of switching of the hybrid

access terminal from a 1xEV-DO mode into a 1X mode, the hybrid access terminal comprising:

a timer repeatedly measuring a monitoring time in order to perform dual monitoring between the 1xEV-DO system and a 1X system;

a searcher module for tracking and converting frequency so as to detect the switching of the hybrid access terminal between the 1X mode and the 1xEV-DO mode, and receiving an overhead message;

a finger module for demodulating the overhead message received in the searcher module; and

a mobile station modem (MSM) chip alternately and periodically searching the 1xEV-DO system and the 1X system, creating a predetermined signal notifying the switching of the hybrid access terminal from the 1xEV-DO mode into the 1X mode when the hybrid access terminal is switched into the 1X mode, and transmitting the predetermined signal to the 1xEV-DO system through the searcher module.

21. The hybrid access terminal as claimed in claim 20, wherein the hybrid access terminal searches frequencies used in the 1X system or 1xEV-DO system according to a predetermined monitoring period so as to be operated in the 1X mode or 1xEV-DO mode.

22. The hybrid access terminal as claimed in claim 20, wherein the predetermined signal includes a DRC cover value,

which is predetermined between the 1xEV-DO system and the hybrid access terminal, notifying a switch of the hybrid access terminal into the 1X mode.

- 5 23. The hybrid access terminal as claimed in claim 20, wherein the hybrid access terminal transmits the predetermine signal to the 1xEV-DO system through a data rate control (DRC) channel.

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